

A₁ • ACIDITY-ALKALINITY AND THE SCHOOLYARD

Objective:

To measure and compare acidity alkalinity of a representative plot in the schoolyard.

Materials Needed:

those materials listed in activity A

digging tools

one large piece of drawing paper

red and blue crayons

tape

Procedure:

1. Choose a site in the schoolyard and collect soil samples.
2. Arrange students in equal rows, five or six students in each row. Space students over the site by having them extend their arms so that only fingertips touch in any direction they turn.
3. Students should take a soil sample from the ground under their feet.
4. Perform the acidity-alkalinity test as described in the Procedure section of activity A.
5. Divide the drawing paper into one inch squares. Each student should be assigned the square on the graph that corresponds to his/her plot. Have students initial the square which represents their plot.
6. After testing, have each student color his/her square with either the red or blue crayon to indicate the results of their litmus tests.
7. Tape completed graph on a wall or the chalkboard.

Questions/Discussion:

1. How does the pattern from the litmus tests compare to any other observations you may have made about your plot?
2. Was the class plot uniform (did it have any bare spots, areas of brown grass, heavily overgrown areas, etc.)?
3. Were the test results uniform?
4. If the plot was not uniform, does there appear to be any correlation between acidity-alkalinity squares and the pattern of the plot?

*Source: National Wildlife Federation

A₂ • GROWING PLANTS IN ACID AND ALKALINE SOILS

Objective:

To demonstrate the effects of acid and alkaline soils on plant growth.

Materials Needed:

soil samples from activity A - some acid and some alkaline (see note)

cups or pint milk cartons (or other planting containers)

rulers

quick-germinating seeds (radish, beans, or corn)

Procedure:

1. Place cups, some containing acid and others with alkaline soil samples under similar light and temperature conditions.
2. Put two or three of the same kinds of seeds into each cup. Be sure to plant all seeds at the same depth in every cup.
3. Give each cup an equal amount of water.
4. Ask students to predict which seeds will grow best, those in acid or those in alkaline soil.
5. Measure plant growth every few days for the next three or four weeks. Records of plant growth should be kept using either growth charts or bar graphs.